



Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

The work is done; no more to man is given;
The grateful Farmer trusts the rest to Heaven.
-Robert Bloomfield, of planting



<http://www.gazers.org>

April 2020

No Meeting. Stay Home.

As you know, the April meeting of the PVSG has been canceled due to the spread of Covid-19. And, though you have seen it, we will repeat the announcement here for the newsletter record:

On Mar 17, 2020, at 9:10 PM, Dwight M. Lanpher wrote::

Hello All,

I have recently received notices that all of the clubs and organizations that I belong to have canceled all meetings in the near future. John Bapst H.S. is closed at least until Monday April, 27.

So there will be no PVSG meeting in April and as our meeting is early in May, you should be prepared for a possible notice of cancellation in May as well.

The Emera Astronomy Center is closed through at least April 30, 2020 so we will not be holding any star parties there in April. Again, we should be prepared for possible cancellation of star parties in May.

So, no program this month, but we still need to thank Shawn for having the March meeting at the Emera Astronomy Center and for showing us the show about auroras that was produced in Iceland.



Auroras Over Iceland

PVSG Monthly Meeting Minutes
March 9, 2020
Emera Center

Meeting:

Call to Order and Welcome

The meeting was called to order at approximately 6:32PM.

Attendance:

Dwight Lanpher - President
Shawn Laatsch
Phil Normand (Secretary)
Wade & Donna Smith
Jeff Waring
Ralph Mallett
Don Krause
Don Ferrell
Doug Rich
Visitor: Sto Ohno

Astro Short

Dwight displayed 2 battery packs. One was a lithium ion battery pack rated at 18 amp hours and the other was a lead acid battery pack rated at 16 amp hours but is three times heavier. The lithium pack has several different power adapters to run the scope, dew heaters and other accessories.

Secretary's Report and Acceptance of Minutes

Minutes were accepted unanimously.

Treasurer's Report

No report.

Observing Reports

Don Ferrell has been observing Orion with binoculars.

Old Business Discussion

- Dwight has been in touch with the lady in Stonington for setting up a tentative date for a star party in mid-July in the Stonington area.
- CMAS is having a star party on Saturday, at 7:30 at the Brower Observatory.
- Phil mentioned that he had added all names in the NSN member list for those who responded to his email.

New Business

- Shawn mentioned that Dark Sky Maine was ramping up awareness of preserving dark skies in Maine. Dwight mentioned other members include Colin Cassie (Brower Observatory), Nancy Hathaway (Stars over Katahdin & Stars over Blue Hill) and John Meader (Portable Planetarium). They have a web site – darkskymaine.org and facebook page at [darkskymaine](https://www.facebook.com/darkskymaine).
- Phil asked when we would setup for star parties at the Emera Center. Shawn mentioned public showing were at 7PM. Dwight said we could set

On the Schedule

(Items Subject to Change)

PROGRAMS

April 13: Meeting canceled.

STAR PARTIES

April 17 canceled, April 24 canceled, May 15, May 22 (co): Emera Astronomy Center.

? Tentative; (rs) rain or shine; (co) clear only; (rd) rain date

up in April before the showing. Late music shows are also planned for 9PM on Fridays.

Program

Shawn ran the program Aurora which was produced in Iceland and the Emera Center was the first place outside Iceland to present it.

Shawn made a few announcements while preparing the show:

- Thursday night's science lecture series presenter will be Dr. Melissa McGinnis (molecular and bio-medical sciences). She will talk about viruses including corona viruses.
- Friday night's program will be "We are Stars" which details how stars work and includes information on the Parker Solar Probe.
- Maine Science Festival is on 21st and 22nd with lectures at the Cross center

and a concert with the Bangor Symphony Orchestra playing a piece from composer Lucas Richman.

- The Emera Center was contacted by the True North Theater Group from the Old Town / Orono area, who will be presenting a production called Silent Skies which is about Henrietta Leavitt and Annie Jump Cannon who gave us stellar classification and who were responsible for classifying tens of thousands of stars by spectral category. They are thinking of presenting the play in the planetarium next January or February.

Adjournment

The meeting adjourned at approximately 8:15 PM.

Phil

Observe The Sky This Month

Some Selected Objects

April 2020

General sky comments – We made it through both the time change and the spring equinox. If you are self-quarantined and able to use your telescope or binocular get out there at night and observe. The days are getting longer and the nights shorter with less time for observing. Early in the evening some of the winter constellations covered here in the last few months are still placed well to observe in addition to the early spring constellations. I do dislike the loss of observing time but I rarely observe all night until the night turns to day. Venus certainly dominates the sky now. I do not remember seeing it so far north. The Lyrid meteor shower peaks on the 22nd only a few hours before prime observing time on the morning of Monday the 23rd and the moon is new that night making for excellent viewing. The Lyrids are also visible throughout the night hours. The Moon is at perigee on the 7th and the full Moon that night is a so called "Super Moon" larger than the "Super Moon" of March. Can you see the difference? A way I have found to keep up with daily sky events is to subscribe to Astronomy Magazines weekly Friday newsletter. To do so simply go to astronomy.com. In each weekly newsletter there is a section called "The sky this week". You can also post to this website.

Planets this month – The Moon is new on Wednesday the 22nd, at first quarter on Wednesday the 1st, full on Tuesday the 7th, and last quarter on Tuesday April 14th. First quarter returns on the 30th, and the Moon is full again on May 7th. Mercury remains in the morning sky all month. It is best seen from the Southern Hemisphere. Venus continues to dominate the evening

western sky. On the evenings of the 2nd through the 4th Venus passes through the Pleiades. It reaches its greatest illumination for the year on the evening of the 27th where it shines brightly at magnitude -4.7. At this time, Venus should be observed at the crescent phase with any type of magnifying device or even those of you having excellent vision without magnification. I personally enjoy finding and observing it visually in full daylight. Mars is visible in the morning sky in Capricorn as it pulls away from Jupiter and Saturn toward its appointment with a close encounter with Earth later in the year. Jupiter is in Sagittarius and by the end of the month it will be visible after midnight all month in the morning sky. Saturn is in the morning sky in Capricornus and joins Jupiter as close as 5° toward the end of the month. Watching the two gas planets draw closer and closer will be a good activity this month. The waning crescent Moon passes through the area on the 14th to 16th. Uranus is too close to the Sun to be observed. Neptune is visible with a telescope in morning twilight. Pluto is in the morning sky in eastern Sagittarius.

Constellations for the month – Antlia, the Air Pump, originally Antlia Pneumatica, it was changed to the single word by William Herschel. Antlia (Latin for pump from the Greek *άντλος* (*pronounced ANT-los*) *bucket on a rope used to bail a ship*) has been said to be the least interesting of all the constellations by several astronomy guide authors. This air pump is not only what we think as a device to put air into something but rather a vacuum pump. Lacaille considered it one of the important inventions of his day along with: Pyxis, the Compass, Fornax, the Chemical Furnace, Telescopium, Microscopium, and Reticulum, the Reticle. He added all of these devices to the sky. Antlia does contain a nice optical double star zeta₁ (ζ) Antlia along with zeta₂ (ζ) Antlia, also double and easily separated with small telescopes. Antlia also contains a lot of galaxies but they are too far south and dim for most of us to ob-

serve. Higher in the sky after the dim stars of Antlia we soon find an easily seen star Alphard, alpha (α) Hydra mag. 1.98 the next eastern part of Hydra, the Water Snake after the head we located last month. Alphard "The Solitary One" is aptly named due to the absence of bright stars in the area and its red orange color a fitting color for the heart of the snake. This portion of Hydra contains an easily seen planetary nebula NGC 3242, "The Ghost of Jupiter" because it has a blue disk almost the same size in the telescope as Jupiter. The central star can be seen in some scopes. See if you can pick it out. This planetary is located 1.5° SSW of mu (μ) Hydra mag. 3.82, the third bright star east of Alphard in the constellation. Continuing on down Hydra visually and after a couple of stars you should see a rather distinctive constellation attached to the back of Hydra. It actually looks like its namesake: Crater, the cup, a circle of dim stars and two brighter stars connecting it to the back of Hydra. When I first saw Crater I was surprised how easy it was to identify, especially at a dark site. Immediately to the east of Crater is a grouping of 3^{rd} mag. stars in a rough trapezoid representing Corvus, the Crow. Corvus is very easy to find and is distinctive even at less than optimum urban sites. Corvus, Crater, and Hydra are connected together in mythology. The Roman version says Apollo sent Corvus with his cup to bring pure water back to him for a sacrifice to Jupiter. Corvus found a fig tree on the way to get the water and as the figs were not yet ripe Corvus waited for them to ripen to get figs to eat. When the crow finally returned to Apollo with the cup full of water he also had a water serpent in his claws. Corvus used the serpent as a reason for the delay but Apollo saw through the deception and put both Corvus and the water snake Hydra in the sky with the cup on the serpents back. Apollo also put Corvus just out of reach of the cup full of water. This is why crows have such a raspy voice because they are always thirsty. The planetary nebula NGC 4361 is $2\frac{1}{2}^\circ$ SE of Gienah gamma (γ) Corvus. Also observe NGC 4038/4039 $3\frac{1}{2}^\circ$ SW of gamma. This is the peculiar Ringtail or Antenna galaxy famous because of a beautiful Hubble telescope photograph. Above the middle of Hydra and to the northwest of Crater is another small and mostly obscure constellation Sextans, the Sextant. It was created by the Polish astronomer Hevelius to commemorate the large Sextant he used at his observatory. He was probably the last major astronomer to use the sextant to visually plot the positions of the stars. It does contain a fair number of galaxies but the only one we will consider is NGC 3115, the Spindle galaxy a lens shaped galaxy visible in binoculars but best seen with larger telescopes. To find it go 7° south of alpha (α) Sextans or 3° east of delta (δ) Sextans. It should be visible in any optical finder. Above the constellations Crater and Sextans is one of the most recognizable constellations in the sky, Leo, the Lion. It is noted for the distinctive asterism of the sickle a backward question mark forming the head of the lion. Leo is noted for the large number of bright Messier galaxies and near Messier galaxies (See below). Above Leo is another inconspicuous small diamond shaped constellation Leo

Minor, the Little Lion invented by Hevelius to fill a gap in the sky above Leo. Look for the galaxy NGC 2859 it is not too difficult to find. Locate the top of the head of Leo and start at the brighter of the stars epsilon (ϵ). Go 12° NNW to the next bright star alpha (α) Lynx this is the far eastern star of the constellation Lynx we located last month. From this star go less than 1° slightly north of due east to find this galaxy. It is a small compact galaxy with an elongated center and a hint of arms in a halo surrounding the galaxy. Above Leo and Leo Minor is an interesting asterism we will need to look up into the sky with no aid but our eyes to find. Look above the hind quarters of Leo and you should see a pair of third magnitude stars. Using your fist as a measuring tool go a little over one fist width to the NW to another pair of stars and then about the same distance to another pair. Arab cultures know this asterism of three pairs of stars (Alula), (Tania), and (Talitha) as "the three leaps of the gazelles". One version of the story is a lion (Leo) is sitting beside a pool (Coma, on next month's observing list) the lion switches his tail disturbing the water in the pool thus frightening some gazelles who leap off away from the pool leaving these star tracks in the sky. We recognize these gazelle tracks in the sky as the feet of our next constellation north, Ursa Major, the Great Bear. Because Ursa Major is the third largest constellation we will break it into parts and consider only the far eastern portion this month. This portion contains many galaxies including the M81, M82 group many of us have observed. To find M81, M82, and NGC 3077 start at the bright star Dubhe, alpha (α) Ursa Major, the star at the upper right corner of the dipper asterism. From Dubhe go 10° NW to this group visible in most finder views. Or start at 23 Ursa Major the bright star 10° to the east of Dubhe and go 6° NNE to the group. You may enjoy several other galaxies in this area including NGC 2976, NGC 2787, and NGC 2985. NGC 3147 NNW of M82 in Draco, NGC 2655 halfway between M81 and Polaris and slightly east in Camelopardalis. For more information on Ursa Major look at the end of this article in other objects of interest. I know this list of celestial objects is a lot to observe. Observe all which interest you. It took me numerous years to observe these and there are still more to observe. Remember John Herschel observed well over 2,000 objects with equipment no better than many modern amateurs.

Featured star – Of the four stars forming the trapezoid of Corvus, Gienah (pronounced Jee-nuh), Gamma (γ) Corvi was listed by Bayer as the fourth brightest. It is actually the brightest at magnitude 2.56-2.60 being slightly variable. The name comes from an Arab phrase meaning "the raven's wing". It is a normal blue-white giant 300 times more luminous than the sun but only four times larger. AAVSO lists it as variable and what little variability it does have probably comes from its strong magnetic field and its radiation convection currents working against each other to rise up and pull down cooler areas to and from the star's surface. This is much like our sun forms sun spots but in this case star spots. Gienah also has been confirmed to have a

10th magnitude companion with a mass of 0.8 solar and 150 year orbit.

Featured Messier object – M97, the Owl nebula is easy to spot under the bowl of the “Big Dipper”. From Merak the bottom right star in the bowl go 1½° SE to M108 (NGC 3556) an edge-on spiral with quite a bit of detail. Continue less than 1° SE to the Owl Nebula, M97 (NGC 3587) a planetary nebula. It was discovered by Pierre Mechain in 1781. Messier later that same year added it to his catalogue. It is fairly large and easy to spot in 4 to 6 inch scopes but it will take a 12 inch scope to spot the two internal darker areas forming the “eyes” on a clear transparent night and a larger scope to easily see the eyes. It is possible to glimpse them with smaller telescopes using averted vision and patience for times when the sky steadies. The overall color of M97 is a bluish grey and it is oval in shape with a diffuse edge. There is also a triangle of background stars you might glimpse shining through the nebulous portion. Observe this planetary and take a bit of time to discover the wonders of this delightful planetary nebula.

Featured constellation – Leo, the Lion is a Zodiac constellation with its origin in ancient Babylonia where the lion was sacred to the goddess of love and war Ishtar. The Greek equivalent was Aphrodite becoming Venus for the Romans. Babylonians used both lions and bulls and the conflict between the two in many stories. Leo is found away from the Milky Way and consequently contains numerous galaxies. Fortunately for us many are particularly bright and Messier uses a lot of them in his famous list. The brightest star in Leo is the heart of the lion Regulus, the alpha (α) star. The next brightest star in the sickle Algieba, gamma (γ) is a two shades of yellow double star visible with small scopes. A triple star system a bit harder to find is 90 Leo. Look 4° NW of Denebola, beta (β) Leo, the tail star of Leo to find this close pair of blue-white stars and a blue star 63” away to the SW. We will next consider the Messier galaxies of Leo and also find some of the galaxies Messier could have used as well. Start at Regulus alpha (α) Leo and go 9° east to find a group of bright gal-

axies, two side by side and two closer together 1° ENE above the left galaxy. This is the M96 group of Leo galaxies. M95 (NGC 3351) is on the right and M96 (NGC 3368) is on the left. Above M96 1° NE is M105 (NGC 3379). You should also observe the first of the near Messier galaxies NGC 3384 next to M105. It would not surprise me if Messier thought these two galaxies were one nebula or a star and a nebula. From this group go 8° east and the M66 (NGC 3627) M65 (NGC 3623) group should appear. Above these two galaxies is NGC 3628 another near Messier galaxy. All three galaxies are spiral galaxies inclined at different angles to the viewer and less than 1°, apart aka the Leo Triplet. The other near Messier galaxy (NGC 2903) is located quite distant from the Messier galaxies but still very much in Leo. To find NGC 2903 go to the end bright star in the sickle, epsilon (ε) Leo. Then proceed 3° WSW to the 4.31 mag lambda (λ) Leo. 1½° south is NGC 2903. NGC 2903 is one of the nicest galaxies for small telescopes and is easily visible in binoculars. This is how I first found and observed this galaxy.

Other objects of interest – Starting at the last leap of the gazelle (Talitha), iota (ι) UMa the front paw of the bear go 3° NE to NGC 2841 a spiral galaxy at least twice as long as it is wide and there is a bright central area slowly fading to the edge. The Hubble space telescope has taken a beautiful detailed picture of this galaxy with the new Wide Field Camera 3. Go to Merak beta (β) UMa the bottom right star of the big dipper. From Merak go 1½° SE to M108 (NGC 3556) an edge-on spiral with quite a bit of detail. Continue less than 1° SE to the Owl Nebula, M97 (NGC 3687) a planetary nebula with two dark spots looking like eyes. Again from Merak go 10° WNW to epsilon (ε) UMa then 1° W to NGC 2950 a dim oval galaxy but easily resolved with an 8” telescope. Just 4° WNW from here is NGC 2768 and NGC 2742 both ovals resolved with an 8” telescope.

Bill

Oklahoma Equinox Sunset



The first sunset following the spring equinox as seen looking down a west facing street. Bill says “I am not sure why the sun is slightly north of west. It set in the middle of the street last year on this date.” Any ideas?